US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Recovering Flood-Damaged Structures Using Electro-Osmotic Pulse (EOP) Technology

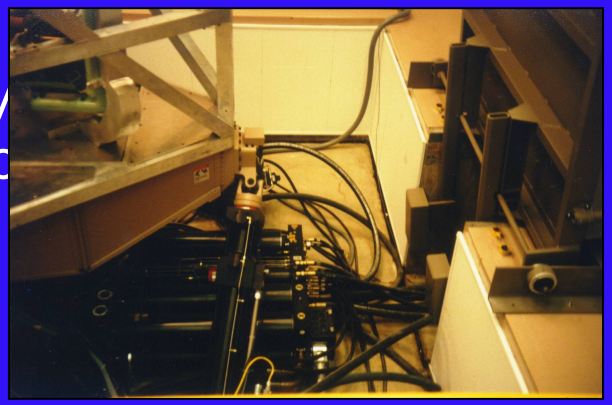
Needs & Problems Addressed:

- Below grade flood damage in urban areas, in residential, commercial and public assets.___

Objectives:

- Develop and implement the application of electro-osmosis to protect building assets from moisture damage when subjected to high water levels.
- Facilitate the transfer of this technology and promote its use in the private secto

Water intrusion is a costly and damaging problem in below grade spaces



Rising urban real estate costs encourage greater utilization of below grade spaces. Expensive, moisture sensitive equipment is frequently housed below

09/10/16

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Work Unit Funding Profile:

FY03	FY04	FY05	FY06	Total
$ 150k	$ 150k	$ 150k	$ 0 k	$ 450k

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Business Program/Missions Areas Supported:

- Inland Navigation __ %
- Coastal Navigation __ %
- Coastal Storm Damage Reduction 40 %
- Inland Flood Control/Damage Reduction 40 %
- Environmental Protection & Quality __ %
- Multi-Purpose (Hydropower, Rec & Water Supply) __ %
- Emergency Management 20 %
- Regulatory __ %
- Support for Others __ %

(Must to add to 100%) Total: 100 %

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CW Strategic Goals Check List: (check if applies)

- Provide sustainable water resources development & mgmt ___
- Restore past environment degradation ___
- Provide project services of high quality _X_
- Reduce losses from natural & manmade hazards _X_
- Supports being a world class technical leader _X_
- Addresses strategic or system needs in a framework or integrated approach by developing:
  - Methods or decision support tools ___
  - Technology to improve life cycle productivity _X_
  - Technology to monitor systems, provide feedback and develop operating guidance ___

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Which “short term” field needs does this support:

- Enhances service life of projects
- Makes critical technologies available
- Reduces life cycle costs when applicable

Field Review Group Relative Ranking:

- FRG planned for 21-22 August 2002

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Listening Sessions Check List: (check if applies)

- Improves data sharing/exchange with the public in these areas:
  - Provides one stop shop for maps & data for basin wide planning ___
  - Provides data to make informed decisions ___
  - Provides a system for basin wide planning ___
  - Provides information about what is happening at Corps facilities _X_ (up to date web sites)
- Tech Transfer plan to include educating the public _X_ Coordinate research, models, analysis with regulatory agencies to insure results will be accepted ___
- Develop R&D products:
  - For watershed management plans, not just at the project level ___
  - To include aesthetics as components of all projects ___ Create better models for ground & surface water ___

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Products:

- Lab validation of EOP stabilization of clay backfill against concrete
- Conduct energy efficiency testing of EOP
- Field Demonstration of EOP in flood prone areas
- ETL
- Fact sheets

EOP has been used effectively in below grade structures to counter active moisture flow.

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Benefits

- Direct:
  - Control of moisture in below grade structures, resulting in improved occupant health, and structural integrity.
- Indirect:
  - Provides fundamental knowledge of new technology
  - Provides hands-on demonstration for field personnel
  - Introduces R&D results to potential users

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Technology Transfer Plan:

- An EOP field demonstration project will be conducted.
- A technical report will be written detailing the results of the field test, as well as Laboratory results (stabilization and efficiency testing)
- Guidance in the form of TL will be developed along with a UFGS and fact sheet.

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Why should the Corps fund this R&D, instead of private industry and/or others:

- There is no incentive for others to conduct the types of tests required to evaluate the utility of this technology

What is Impact if not started:

- Technology will not be proven and may not be applied when it can mitigate damages and reduce life cycle costs